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| SERIAL NUMBER | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
| 08/715,834 | 09/19/96 | KALEND | A 127444 |

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33M1/0228

EXAMINER

ART UNIT PAPER NUMBER

Z
3305

DATE MAILED: 02/28/97

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

This application has been examined Responsive to communication filed on _____ This action is made final

A shortened statutory period for response to this action is set to expire 3 month(s), _____ days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. Notice of References Cited by Examiner, PTO-892.
3. Notice of Art Cited by Applicant, PTO-1449.
5. Information on How to Effect Drawing Changes, PTO-1474.
2. Notice of Draftsman's Patent Drawing Review, PTO-948. *(cognac)*
4. Notice of Informal Patent Application, PTO-752.
6. _____

Part II SUMMARY OF ACTION

1. Claims 1-21 are pending in the application.
Of the above, claims _____ are withdrawn from consideration.
2. Claims _____ have been cancelled.
3. Claims _____ are allowed.
4. Claims 1-21 are rejected.
5. Claims _____ are objected to.
6. Claims _____ are subject to restriction or election requirement.
7. This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. Formal drawings are required in response to this Office action.
9. The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are acceptable; not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).
10. The proposed additional or substitute sheet(s) of drawings, filed _____, has (have) been approved by the examiner; disapproved by the examiner (see explanation).
11. The proposed drawing correction, filed _____, has been approved; disapproved (see explanation).
12. Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has been received not been received been filed in parent application, serial no. _____; filed on _____.
13. Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. Other

EXAMINER'S ACTION

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1. The disclosure is objected to because of the following informalities which were corrected by the Examiner. Applicants' copy should be corrected to correspond: page 5, line last "position", "Position" to --patient--, --Patient-- . Appropriate correction is required.
2. Claims 1-21 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 1, the language "comprising responsive" is apparently omisssive of 'means' in the middle.

With respect to claim 3, the 'means ..terminating radiation treatment' is vague insofar as the apparatus has heretofore been recited generically to all types of treatment/diagnosis.

With respect to claim 19, "said beam generating means" lacks antecedence. Dependent claim 21 is not redemptive to the issue since it remains unclear whether the 'beam generator' is part of the claimed combination.

Dependent claims otherwise inherit the parent claim defects.

3. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary

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skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

4. Claims 1-6 and 8-12 are rejected under 35 U.S.C. § 103 as being unpatentable over Neely et al. Neely et al teaches camera means 32 as discussed in Col. 3 which act on passive fiducials 82-86 as discussed Col. 159 bottom-Col. 160 top portion, , processor means 16 as discussed in Cols. 4-5 and argued to be responsive to shape, appearance and lighting of the face, see Col. 7 lines 30-61, and display means 28 for generating an output of movement as discussed for example Col. 5 top portion.

With respect to claims 2-6, Neely et al discusses an output mode wherein enhanced, thresholded or super-contrasted images are compared, see Col. 8 lines 37-60, Col. 10 lines 16-42 and the Quadrant percentage tables in Cols. 163-166, and random or breathing associated facial movements might figure into the Neely et al assessment discussed in Col. 161 lines 33-44, for example a patient might purse lips to blow to test the orbis orbicularis strength in lieu of smiling.

With respect to claims 8-12, Neely et al discusses image filtering at Col. 10 lines 16-43.

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5. Claims 1-6 are rejected under 35 U.S.C. § 103 as being unpatentable over Gerig et al.

With respect to claim 1, Gerig et al shows camera means 130, 160, passive fiducials 111-114, and processing means 200 responsive to.

With respect to claims 2-6, Gerig et al produces outputs relative to patient motion deviation thresholds, see Fig. 3 and Col. 10 lines 30-58.

6. Claims 7 and 19-21 are rejected under 35 U.S.C. § 103 as being unpatentable over Gerig et al as applied to claim 1 above, and further in view of Fujita. It would have been obvious in view of the latter to measure breathing excursion via a remote imaging device such as 22 argued to be a camera 'means' or equivalent, the body surface serving as the fiducial, and to output the result as in Figs. 5 and 6 in order to control the main medical system in accordance with patient movement.

7. Claims 8-14 are rejected under 35 U.S.C. § 103 as being unpatentable over Gerig et al as applied to claim 1 above, and further in view of Hardy, insofar as Col. 8 lines 15-24 evidences that where a fiducial for identifying position is not a sharply defined point or mark but rather an anatomic contour or such then one can rely on filtering schemes to provide a boundary identification. Such recognition is tantamount to defining of a template or 'landmark' in or on the subject.

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8. Claims 15-18 would be allowable if rewritten to overcome the rejection under 35 U.S.C. § 112 and to include all of the limitations of the base claim and any intervening claims.

Patentability Assessment

Informalities present in both base claims render the scope unclear.

Neely et al is best representative of a camera-based movement detector, the movement itself being the object of diagnosis therein.

Gerig et al is best representative of position/movement detection system subsidiary to the main (treatment) system.

Patentability is acknowledged for certain of the dependent claims re-written sans informalities.

The following additional art is cited as of interest:
Nowacki et al, Bova et al, Heilbrun et al - Plural cameras used to track patient position in conjunction with camera-identifiable fiducials.

Groch et al, Trotel, Acharya et al - Motion correction or compensation or gating systems where a non-camera imaging means apart from or part of the main diagnosis/therapy emission system is used to determine patient movement.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner

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Francis J. Jaworski whose telephone number is (703) 308-3061. The examiner can normally be reached on weekdays from 9:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marvin Lateef, can be reached on (703) 308-3256.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0858. The fax phone number for this Group is (703) 305-3590.

FJJ:fjj

2-24-97


FRANCIS JAWORSKI
PRIMARY EXAMINER
ART UNIT 335